

CLAIMS

1. A semiconductor light-emitting element mounting member comprising: a substrate; and a metal film formed on a surface of said substrate, formed from
5 Ag, Al, or an alloy containing said metals, and functioning as an electrode layer for mounting a semiconductor light-emitting element and/or a reflective layer for reflecting light from a semiconductor light-emitting element; wherein: crystal grains of said metal or alloy forming said metal film have a particle diameter along a surface plane of said metal film is no more than 0.5 μm ; and
10 said surface of said metal film has a center-line average roughness Ra of no more than 0.1 μm .
2. A semiconductor light-emitting element mounting member according to claim 1 wherein an adhesion layer and a barrier layer are formed, in sequence, on said substrate, with said metal film being formed on said barrier layer.
- 15 3. A semiconductor light-emitting element mounting member according to claim 1 wherein said metal film is formed as an alloy of Ag and/or Al and other metal, a proportional content of said other metal being 0.001 - 10 percent by weight.
4. A semiconductor light-emitting element mounting member according to
20 claim 3 wherein said other metal is at least one type of metal selected from a group consisting of Cu, Mg, Si, Mn, Ti, and Cr.
5. A semiconductor light-emitting element mounting member according to claim 1 wherein a film thickness of said metal film is 0.5 - 3 μm .

6. A semiconductor light-emitting element mounting member according to claim 1 wherein said metal film is formed from Al alone or from an alloy of Al and other metal.
7. A semiconductor light-emitting element mounting member according to claim 1 wherein a thermal expansion coefficient of said substrate is $1 \times 10^{-6}/K - 10 \times 10^{-6}/K$.
8. A semiconductor light-emitting element mounting member according to claim 1 wherein a thermal conductivity of said substrate is at least 80 W/mK.
9. A semiconductor light-emitting element mounting member according to claim 1 wherein said semiconductor light-emitting element mounting member is a flat submount.
10. A semiconductor light-emitting device wherein a semiconductor light-emitting element is mounted in a semiconductor light-emitting element mounting member according to claim 1.
11. A semiconductor light-emitting device according to claim 10 wherein output is at least 1 W.